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EXAMINER	
ZEMAN, ROBERT A	
ART UNIT	**PAPER NUMBER**
1645	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/660,123	ENGLAND ET AL.	
	Examiner	Art Unit	
	ROBERT A. ZEMAN	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-32,36-38 and 41-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-32,36-38 and 41-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The amendment filed on 7-7-2008 is acknowledged. Claims 15, 17, 25 and 31 have been amended. Claims 34-35, 39 and 40 have been canceled. Claims 41-54 have been added. Claims 15-32, 36-38 and 41-54 are pending and currently under examination.

Claim Rejections Withdrawn

The rejection of claims 15, 17-18, 23-32 and 34-40 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is withdrawn in light of the amendment thereto.

Claim Rejections Maintained

35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 15-32, 36-38 and 41-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchinson et al. (U.S. Patent 6,268,328) and Kamo et al. (JP 05211883) for the reasons set forth in the previous Office action in the rejection of claims 15-32 and 34-40. The cancellation of claims 34-35 and 39-40 has rendered the rejection of said claims moot.

Applicant argues:

1. Mitchinson and Kamo, alone or in combination, fail to teach or suggest all the elements of independent claim 15 and its dependent claims as said claims require culturing a host cell with an inducing feed composition while Kamo describes the removal of non-reacted glucose and fails to teach or suggest culturing a cell with an inducing composition.
2. Kamo teaches away from the instant invention as it teaches the removal of unreacted glucose.

Applicant's arguments have been fully considered and deemed non-persuasive.

With regard to Points 1 and 2, the instant claims have no limitation regarding the concentration of glucose in "inducing feed". Given that the purification processes disclosed by Kamo would not lead to a product completely free of glucose, the reaction mixture of Kamo would necessarily contain glucose as required by the instant claims. Moreover, the claim language used does not preclude a purification step. Finally, Applicant is reminded that skilled artisan would look to Kamo for an inexpensive means of producing sophorose and gentiobiose.

The instant claims are drawn to methods of producing an inducing feed comprising sophorose and/or gentiobiose, and glucose from a composition comprising a high concentration of glucose and the using that feed in methods of producing proteins (endogenous cellulase) utilizing a host cell wherein the said host cell can be a bacteria (*Bacillus, Streptomyces, Thermomonospora or Cellumonas*) or a filamentous fungus (*Trichoderma reesei*). Said host cell contains a vector wherein said vector can optionally comprise a sophorose or gentiobiose inducible promoter (*cbh* 1).

As outlined previously, Mitchinson et al. disclose methods of recombinantly producing cellulases utilizing host cells comprising expression vectors wherein said host cells can be either bacterial, yeast or fungal. Mitchinson et al. further disclose that the bacterial host cells can be *Bacillus subtillis* and the fungal host cells can be *Trichoderma reesei* (see column 12, lines 14-15). Moreover, Mitchinson et al. disclose that the expression vectors further comprise an inducible promoter and that said promoter can be cbh1 (see column 11, lines 38-39). Additionally, Mitchinson et al. disclose that the expressed protein can be heterologous to the host cell. While Mitchinson et al. do not explicitly disclose that the promoters used are sophorose or gentiobiose inducible; the disclosed *cbh1* promoter possesses these characteristics.

Mitchinson et al. differs from the instant invention in that they don't explicitly disclose methods of making an "inducing feed" from a composition comprising a high glucose solution.

Kamo et al. disclose methods of making sophorose and gentiobiose from a composition comprising 10-90% glucose and beta-glycosidase (see paragraph [0012].

Consequently, it would have been obvious for the skilled artisan to incorporate the methods of Kamo et al. with those of Mitchinson et al. in order to take advantage of the

inexpensive means of producing sophorose and gentiobiose and to take advantage of the increased production associated with the use of sophorose and gentiobiose-inducible promoters.

With regard to the specific species recited in claim 30, as Fowler et al. discloses that the host cells in their method can be "any host cell conventionally used for the heterologous expression of proteins" (see column 3, lines 12-14) and the genus *Penicillium* is specifically disclosed, its use is considered to be an obvious variant of the disclosed method.

Claims 15-32, 36-38 and 41-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fowler et al. (U.S. Patent 6,407,046) and Kamo et al. (JP 05211883) for the reasons set forth in the previous Office action in the rejection of claims 15-32 and 34-40. The cancellation of claims 34-35 and 39-40 has rendered the rejection of said claims moot.

Applicant argues:

1. Fowler and Kamo, alone or in combination, fail to teach or suggest all the elements of independent claim 15 and its dependent claims as said claims require culturing a host cell with an inducing feed composition while Kamo describes the removal of non-reacted glucose and fails to teach or suggest culturing a cell with an inducing composition.

Applicant's arguments have been fully considered and deemed non-persuasive.

With regard to Points 1 and 2, the instant claims have no limitation regarding the concentration of glucose in "inducing feed". Given that the purification processes disclosed by Kamo would not lead to a product completely free of glucose, the reaction mixture of Kamo would necessarily contain glucose as required by the instant claims. Moreover, the claim

language used does not preclude a purification step. Finally, Applicant is reminded that skilled artisan would look to Kamo for an inexpensive means of producing sophorose and gentiobiose.

The instant claims are drawn to methods of producing an inducing feed comprising sophorose and/or gentiobiose, and glucose from a composition comprising a high concentration of glucose and the using that feed in methods of producing proteins (endogenous cellulase) utilizing a host cell wherein the said host cell can be a bacteria (*Bacillus, Streptomyces, Thermomonospora or Cellumonas*) or a filamentous fungus (*Trichoderma reesei*). Said host cell contains a vector wherein said vector can optionally comprise a sophorose or gentiobiose inducible promoter (*cbh* 1).

As outlined previously, Fowler et al. disclose methods of recombinantly producing cellulases utilizing host cells comprising expression vectors wherein said host cells can be either bacterial, yeast or fungal. Fowler et al. further disclose that the bacterial host cells can be *Bacillus subtillis* and the fungal host cells can be *Trichoderma reesei* (see column 6, lines 40-42). Moreover, Fowler et al. disclose that the expression vectors further comprise an inducible promoter and that said promoter can be cbh1 (see column 5, lines 54-60 and column 13, lines 51-53). Additionally, Fowler et al. disclose that the expressed protein can either be either homologous or heterologous to the host cell (see column 14, lines 24-25). While Fowler et al. do not explicitly disclose that the promoters used are sophorose or gentiobiose inducible; the disclosed *cbh1* promoter possesses these characteristics.

Fowler et al. differs from the instant invention in that they don't explicitly disclose methods of making an "inducing feed" from a composition comprising a high glucose solution.

Kamo et al. disclose methods of making sophorose and gentiobiose from a composition comprising 10-90% glucose and beta-glucosidase (see paragraph [0012].

Consequently, it would have been obvious for the skilled artisan to incorporate the methods of Kamo et al. with those of Fowler et al. in order to take advantage of the inexpensive means of producing sophorose and gentiobiose and to take advantage of the increased production associated with the use of sophorose and gentiobiose-inducible promoters.

With regard to the specific genus/species recited in claims 29-30, as Fowler et al. discloses that the host cells in their method can be "any transformable microorganism in which expression can be achieved " (see column 5, lines 37-40), their use is considered to be an obvious variant of the disclosed method.

Claims 15-32, 36-38 and 41-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehmbeck (U.S. Patent 6,352,841) et al. (U.S. Patent 6,407,046) and Kamo et al. (JP 05211883) for the reasons set forth in the previous Office action in the rejection of claims 15-32 and 34-40. The cancellation of claims 34-35 and 39-40 has rendered the rejection of said claims moot.

Applicant argues:

1. Lehmbeck and Kamo, alone or in combination, fail to teach or suggest all the elements of independent claim 15 and its dependent claims as said claims require culturing a host cell with an inducing feed composition while Kamo describes the removal of non-reacted glucose and fails to teach or suggest culturing a cell with an inducing composition.

Applicant's arguments have been fully considered and deemed non-persuasive.

With regard to Points 1 and 2, the instant claims have no limitation regarding the concentration of glucose in "inducing feed". Given that the purification processes disclosed by Kamo would not lead to a product completely free of glucose, the reaction mixture of Kamo would necessarily contain glucose as required by the instant claims. Moreover, the claim language used does not preclude a purification step. Finally, Applicant is reminded that skilled artisan would look to Kamo for an inexpensive means of producing sophorose and gentiobiose.

The instant claims are drawn to methods of producing an inducing feed comprising sophorose and/or gentiobiose, and glucose from a composition comprising a high concentration of glucose and the using that feed in methods of producing proteins (endogenous cellulase) utilizing a host cell wherein the said host cell can be a bacteria (*Bacillus, Streptomyces, Thermomonospora or Cellumonas*) or a filamentous fungus (*Trichoderma reesei*). Said host cell contains a vector wherein said vector can optionally comprise a sophorose or gentiobiose inducible promoter (*cbh* 1).

As outlined previously, Lehmbeck et al. disclose methods of recombinantly producing cellulases utilizing host cells comprising expression vectors wherein said host cells can be either bacterial, yeast or fungal. Fowler et al. further disclose that the bacterial host cells can be *Bacillus subtillis* and the fungal host cells can be *Trichoderma reesei* (see column 6, lines 40-42). Moreover, Lehmbeck et al. disclose that the expression vectors further comprise an inducible promoter and that said promoter can be cbh1 (see column 5, lines 54-60 and column 13, lines 51-53). Additionally, Lehmbeck et al. disclose that the expressed protein can either be

either homologous or heterologous to the host cell (see column 14, lines 24-25). While Lehmbeck et al. do not explicitly disclose that the promoters used are sophorose or gentiobiose inducible; the disclosed *cbh1* promoter possesses these characteristics.

Lehmbeck et al. differs from the instant invention in that they don't explicitly disclose methods of making an "inducing feed" from a composition comprising a high glucose solution.

Kamo et al. disclose methods of making sophorose and gentiobiose from a composition comprising 10-90% glucose and beta-glucosidase (see paragraph [0012].

Consequently, it would have been obvious for the skilled artisan to incorporate the methods of Kamo et al. with those of Lehmbeck et al. in order to take advantage of the inexpensive means of producing sophorose and gentiobiose and to take advantage of the increased production associated with the use of sophorose and gentiobiose-inducible promoters.

With regard to the specific species recited in claim 30, as Lehmbeck et al. discloses that the host cells in their method can be "any host cell conventionally used for the heterologous expression of proteins" (see column 3, lines 12-14) and the genus *Penicillium* is specifically disclosed, its use is considered to be an obvious variant of the disclosed method.

New Grounds of Rejection

35 USC § 112, Written Description

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 41-54 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The instant claims are drawn to methods of producing proteins (e.g. an endogenous protein, endogenous cellulase or heterologous proteins) utilizing a host cell wherein the said host cell can be a bacteria (e.g. *Bacillus, Streptomyces, Thermomonospora or Cellumonas*) or a filamentous fungus (e.g. *Trichoderma reesei*). Said methods contain one active step: contacting a cell with a solution comprising glucose and a cellulase preparation that has been incubated for 8 to 500 hours at 50 °C to 70 °C " required for the accomplishment of the stated goal of the method (i.e. the production of a protein of interest). The specification is silent with regard to the specific components present in the inducing feed composition end-product. Moreover, the specification is silent as what times and temperatures are required to obtain an inducing feed composition with certain components other than that regarding sophorose and gentiobiose. The specification defines inducing feed as "a solution fed to a microorganism that causes or induces the production of the desired protein product" (see page 13 of the specification); this is insufficient to meet the written description requirement.

The aforementioned claims are directed to encompass any solution fed to a microorganism that causes or induces the production of the desired protein product. The specification provides insufficient written description to support the genus encompassed by the claim.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention.* The invention is, for purposes of the 'written description' inquiry, *whatever is now*

claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.)

The skilled artisan cannot envision the detailed chemical composition of the encompassed compounds, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. The composition itself is required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc. V. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016. In Fiddes v. Baird, 30 USPQ2d 1481, 1483, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence.

> Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404. 1405 held that: ...To fulfill the written description requirement, a patent specification must describe an invention and does so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." *Lockwood v. American Airlines Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (" [T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood,* 107 F.3d at 1572, 41 USPQ2datl966.
>
> An adequate written description of a DNA, such as the cDNA of the recombinant plasmids and microorganisms of the '525 patent, "requires a precise definition, such as by structure, formula, chemical name, or physical properties," not a mere wish or plan for obtaining the claimed chemical invention. *Fiers v. Revel,* 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). Accordingly, "an adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself." Id. at 1170, 25 USPQ2d at 1606.
>
> The name cDNA is not itself a written description of that DNA; it conveys no distinguishing information concerning its identity. While the example provides a process for obtaining human insulin-encoding cDNA, there is no further information in the patent pertaining to that cDNA's relevant structural or physical characteristics; in other words, it thus does not describe human insulin cDNA. Describing a method of preparing a cDNA or even describing the protein that the cDNA encodes, as the example does, does not necessarily describe the cDNA itself. No sequence information indicating which nucleotides constitute human cDNA appears in the patent, as

appears for rat cDNA in Example 5 of the patent. Accordingly, the specification does not provide a written description of the invention of claim 5.

Therefore, *the full breadth of the claims* fails to meet the written description provision of 35 USC 112, first paragraph. The species specifically disclosed are not representative of the genus because the genus is highly variant. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 USC 112 is severable from its enablement provision. (See page 1115.).

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT A. ZEMAN whose telephone number is (571)272-0866. The examiner can normally be reached on Monday- Thursday, 7am -5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Mondesi can be reached on (571) 272-0956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert A. Zeman/
Primary Examiner, Art Unit 1645
December 29, 2008